

IN THE CLAIMS:

Please amend Claims 10 and 20 as follows.

1. (Previously Presented) An image reproduction apparatus for performing walk-through in a virtual space, comprising:
 - a storage unit configured to store a plurality of partial images obtained by dividing a panoramic image by a predetermined angular field of view for each of a plurality of panoramic images, each panoramic image corresponding to a plurality of viewpoints;
 - an input unit configured to permit a user to perform an input operation;
 - a selection unit configured to select a partial image stored in said storage unit based on a position and direction of a user's viewpoint according to the input operation of said input unit , and an angular field of view of a display; and
 - a generation unit configured to generate an image corresponding to the position and the direction of a viewpoint from the selected partial image, and providing the generated image for the display,
 - wherein each of the plurality of partial images shares an overlapping portion with adjacent partial images,
 - wherein an angular field of view of the partial image doubles the angular field of the display, and
 - wherein the whole of the partial image is overlapped by adjacent partial images.

2-4. (Cancelled)

5. (Previously Presented) The apparatus according to claim 1, wherein said storage unit stores each partial image in an independent file.

6. (Previously Presented) The apparatus according to claim 5, wherein:
said position of a viewpoint moves along a road on a map; and
said apparatus further comprises a read unit configured to determine a file next required based on the road containing the position of the viewpoint and the moving direction before the viewpoint position information is input.

7. (Previously Presented) The apparatus according to claim 1, wherein:
said storage unit stores $m \times n$ partial images obtained by n panoramic images each comprising m partial images, and header information indicating a start position of each of the $m \times n$ partial images in one file; and
said selection unit determines a file containing a panoramic image corresponding to the viewpoint position information, determines a partial image to be used by said generation unit based on the viewpoint direction information and an angular field of view of the display, and obtains a partial image to be provided according to the header information.

8-9. (Cancelled)

10. (Currently Amended) An image reproduction apparatus, comprising:

a storage unit configured to store a plurality of partial images obtained by dividing a panoramic image by a predetermined angular field of view for each of a plurality of panoramic images, each panoramic image corresponding to a plurality of viewpoints;

a selection unit configured to select partial images stored in said storage unit based on information about a position and a direction of a viewpoint;

a drawing unit configured to rotate the selected partial image by 90° and draw the ~~selected~~ rotated partial images in a successive memory space; and

an extraction unit configured to extract an output image corresponding to the position and the direction of a viewpoint from the memory space where the partial images have been drawn, based on a start pixel address and an end pixel address of the output image.

~~wherein said storage unit stores each partial image as a 90° rotated image.~~

11. (Previously Presented) An image reproducing method for performing walk-through in a virtual space, comprising the steps of:

storing in a storage unit a plurality of partial images obtained by dividing a panoramic image by a predetermined angular field of view for each of a plurality of panoramic images, each panoramic image corresponding to a plurality of viewpoints;

receiving an input from a user;

selecting a partial image stored in said storage unit based on a position and direction of a user's viewpoint according to the input received in said receiving step, and an angular field of view of a display; and

generating an image corresponding to the position and the direction of a viewpoint from

the selected partial image, and providing the generated image for the display,

wherein each of the plurality of partial images shares an overlapping portion with adjacent partial images,

wherein an angular field of view of the partial image doubles the angular field of the display, and

wherein the whole of the partial image is overlapped by adjacent partial images.

12-14. (Cancelled)

15. (Original) The method according to claim 11, wherein said storing step stores each partial image in an independent file.

16. (Previously Presented) The method according to claim 15, wherein:

said position of a viewpoint moves along a road on a map; and

the method further comprises a reading step of determining a file next required based on the road containing the position of the viewpoint and the moving direction before the viewpoint position information is input.

17. (Previously Presented) The method according to claim 11, wherein:

said storing step stores $m \times n$ partial images obtained by n panoramic images each comprising m partial images, and header information indicating a start position of each of the $m \times n$ partial images in one file; and

said selecting step determines a file containing a panoramic image corresponding to the viewpoint position information, determines a partial image to be used in said generating unit based on the viewpoint direction information and an angular field of view of the display, and obtains a partial image to be provided according to the header information.

18-19. (Cancelled)

20. (Currently Amended) An image reproducing method, comprising the steps of:
storing in a storage unit a plurality of partial images obtained by dividing a panoramic image by a predetermined angular field of view for each of a plurality of panoramic images, each panoramic image corresponding to a plurality of viewpoints;
selecting partial images stored in said storage unit based on information about a position and a direction of a viewpoint;

rotating the selected partial images by 90°.

drawing [[,]] the rotated ~~selected~~ partial images in a successive memory space; and

extracting ~~extraction~~ an output image corresponding to the position and the direction of a viewpoint from the memory space where the partial images have been drawn, based on a start pixel address and an end pixel address of the output image.

~~wherein said storing step stores each partial image as a 90° rotated image.~~

21-32. (Cancelled)

33. (Previously Presented) A computer-executable program for performing walk-through in a virtual space, comprising:

a code of storing in a storage unit a plurality of partial images obtained by dividing a panoramic image by a predetermined angular field of view for each of a plurality of panoramic images, each panoramic image corresponding to a plurality of viewpoints;

a code of inputting a user's input;

a code of selecting a partial image stored in said storage unit based on a position and direction of a user's viewpoint according to the user's input, and an angular field of view of a display; and

a code of generating an image corresponding to the position and the direction of a viewpoint from the selected partial image, and providing the generated image for the display,

wherein each of the plurality of partial images shares an overlapping portion with adjacent partial images,

wherein an angular field of view of the partial image doubles the angular field of the display, and

wherein the whole of the partial image is overlapped by adjacent partial images.

34. (Cancelled)

35. (Previously Presented) A storage medium for performing walk-through in a virtual space storing a computer-executable control program, said control program comprising:

a code of storing in a storage unit a plurality of partial images obtained by dividing

panoramic image by a predetermined angular field of view for each of a plurality of panoramic images, each panoramic image corresponding to a plurality of viewpoints;

a code of inputting a user's input;

a code of selecting a partial image stored in said storage unit based on a position and direction of a user's viewpoint according to the user's input, and an angular field of view of a display; and

a code of generating an image corresponding to the position and the direction of a viewpoint from the selected partial image, and providing the generated image for the display,

wherein each of the plurality of partial images shares an overlapping portion with adjacent partial images,

wherein an angular field of view of the partial image doubles the angular field of the display, and

wherein the whole of the partial image is overlapped by adjacent partial images.

36. (Cancelled)

37. (Previously Presented) A computer-executable program comprising code for effecting the method of claim 20.

38. (Previously Presented) A storage medium storing the computer-executable program of claim 37.